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Study of poisoning in adults at Poison Control Center, Loqman Hakeem Hospital, Tehran, Iran

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Introduction

Acute poisoning cases attending at Poison Control Center of Loqman-e Hakeem hospital were studied from April 25,2000 to April 25, 2001, in order to determine the cause of high prevalence of poisonings in adults.

Nowadays we observe an increase in the number of poisonings in adults annually [1,2]. Over 20000 people suffering from acute poisoning are referred to this center each year [6]. Following a pre-determined protocol, we consider not only epidemiology of poisonings but also clinical findings and outcome of poisoned patients.

Methods

This is an observational and case-series study. All poisoned patients who were referred to this center have been included into the study. Staff emergency physicians performed a standardized assessment to include history and clinical variables and filled out available questionnaire. Informed consent was implied and type of sampling was nonprobablity and convenient one. Pschyiatric evalution was done by a psychiatrist on admitted cases. Concerned society was Tehran and our data was analysed via **spss** software.

Results

1)Of total 19,511 patients, 8,284 cases (42.45%) were admitted into ward and 11,227 cases (57.55%) were discharged after 3 to 6 hours observation and management.

2)Of total 19,511 patients, 12233 cases (62.7%) were female and 7,278 cases (37.3%) were male.

3)The number of patients in seasons of year in descending frequency were: summer (5412, 27.7%), spring (5123, 26.2%), winter (4724, 24.3%), fall (4254, 21.8%)

4)The number of cases according to age and gender have been shown in table 1

Table 1. Age and gender variables

Age group	*Number of patients*	*Total*	
male	*famale*		
13 - 20	**1228 (22%)**	**4352 (78%)**	**5580 (29.5%)**
20 - 30	**2823 (41.7%)**	**3947 (58.3%)**	**6770 (34.6%)**
30 - 40	**1380 (42.1%)**	**1898 (57.9%)**	**3278 (16.8%)**
40 - 50	**760 (46.4%)**	**879 (53.6%)**	**1639 (8.4%)**
>50	**1067 (47.59%)**	**1177 (52.41%)**	**2244 (11.5%)**

5)Poisonings based on type has been shown in table 2

Table 2. poisonings based on type

S.No.	*TYPE OF DRUG AND POISON*	*PERCENT*	*NUMBER*
1	**Benzodiazepines**	**16.4**	**3200**
2	**Unknown**	**12.84**	**2505**
3	**Analgesics**	**12.65**	**2468**
4	**Antidepressants**	**11.8**	**2302**
5	**Opiates**	**11.2**	**2165**
6	**Alcohols**	**4.8**	**937**
7	**Cardiovascular drugs**	**4.6**	**898**
8	**Antipsychotics**	**4.1**	**800**
9	**Anticonvulsants**	**3.7**	**722**
10	**Pesticides**	**3.36**	**656**
11	**Arsenic***	**2.8**	**546**
12	**Rodenticides**	**2.6**	**507**
13	**Petroleum distillates&Turpentine**	**1.82**	**355**
14	**Detergents**	**1.4**	**273**
15	**Gases**	**1.25**	**244**
16	**Hallucinogens**	**1.2**	**410**
17	**Bites(insect,snake,scorpion)**	**0.8**	**176**
18	**Mushrooms&poisonous plants**	**0.7**	**136**
19	**Corrosive**	**0.68**	**132**
20	**Iron**	**0.4**	**78**

*Arsenic is used in depilatory powders.

6)Cases of poisonings according to nature have been shown in table 3

Table 3. Causes of poisonings by nature

Nature of poisoning	*Percent*	*Number*
Voluntary	**93.7**	**18282**
Accidental	**4.86**	**948**
Occupational	**1.38**	**269**
Criminial	**0.06**	**12**

7) From viewpoint of marital status: Females: single female 54%, married female 39.5%, unknown 5.5% Males: single male 61%, married male 36%, unknown 3%.

8) Accidental poisonings Carbon monoxide and other gases 25.5% (242 cases), Petroleum distillates & turpentine 23% (218 cases), Opiates 19%(180 cases), Bites 18.6% (176 cases) and other substances constituted 13.9% (132 cases). We must emphasize that poisonings due to occupational type are mostly managed in occupational medicine units of large factories. Unknown cases are due to inexact reply of patient or his/her family.

9)Regarding route of poisonings, this study shows of the total referrals, oral 1854 cases (95.026%), inhalation 400 cases (2.05%), bites 176 cases (0.9%), injection 291cases (1.49%) and cutaneous contact 7 cases (0.034%). We must emphasize that slight poisonings due to cutaneous contact are managed in the department of dermatology, and thus actual statistics of poisonings via cutaneous route constitute more than this data.

10)Of total cases, 18262 cases (93.6%) didn't have past history of psychologic disorders and 1249 cases (6.4%) had a past history of psychologic disorders. Of cases with a past history of psychologic disorders, 985 cases (79%) have been suffering from anxiety and depression.

11)Accompanying disease: Diabetes mellitus 63 cases (0.32%), Cardiovascular disease 183 cases (0.94%), Epilepsy 59 cases (0.3%)

12)Job and occupation variables: Pupil (2419, 12.4%), Student (261, 1.34%), House-keeper (5268, 27%), Employee (2497, 12.8%), Self-employed (4936, 25.3%), Unemployment (842, 4.6%) and unknown (3287, 17%). The last is due to inexact enrollment.

13)Deterioration in consciousness (from drowsiness to coma): Benzodiazepines 24%, Analgesics 9.5%, Opiates 49%, Antidepressants 17.1%, Hallucinogens 9%, Cardiovascular drugs 10.5%, Antipsychotics 54.3%, Alcohols 32.2%, Petroleum distillate&Turpentine 9.5%, Herbicides 9.4%, Anti-convulsants 36%, Detergents 2%, Corrosives 12%, Mushrooms and poisonous plants 16%, Multidrug (coingestion and unknown drugs 18.5%, Iron 1.3%, Rodenticides 6% Arsenic 4.8%, Bites 6.5%, Gases 36% ..

14)Gastrointestinal signs & symptoms: Nausea 5853 cases (31%), Vomitting 2771 cases (14.2%), Abdominal pain 1225 cases (6.28%), Haematemesis 41 cases (0.21%), Diarrhea 297 cases (1.52%), salivation 605 cases (3.1%)

15)Respiratory signs and symptoms: Tachypnea (RR>12): 889cases (4.6%), Bradypnea (RR<8) : 1776 cases (9.1%), Respiratory distres : 204 cases (1.05%),Respiratory arrest: 47 cases (0.24%)

16)Ocular signs &symptoms: Miosis 283 cases (12.2%), Mydriasis 1803 cases (9.24%), Nystagmus 16 cases (0.08%), Blurred vision 1206 cases (6.2%)

17)Neurologic Findings: Convulsion 39 cases (0.2%), Increased DTR (deep Tendon reflexes) 1641 cases (8.41%) and decreased DTR : 2166 cases (11.1%)

18) Of total cases: Pharmaceuticals 13004 (66.65%) and Non-pharmaceuticals 6507 cases (33.35%).

19)Separation of Analgesic poisonings by type of drug: Acetaminophen 31.4%, Aspirin 6.07%, Mefenamic Acid 4.2%, Ibuprophen 5.14%, Diclofenac 5.72 %, Indomethacine 0.86%, Adult cold 18.1% and mixed 28.5%.

20)The level of consciousness in poisonings is shown in table 4

Table 4. Consciousness level in poisonings

S.No.	*POISONING*	*CONSCIOUS*	*COMA GRADE I*	*COMA GRADE II& MORE*
1	**Benzodiazepines**	**2432(76%)**	**541(16.9%)**	**229(7.1%)**
2	**Analgesics**	**2233(90.5%)**	**161(6.5%)**	**74(3%)**
3	**Opiates**	**1104(51%)**	**629(29%)**	**432(19.1%)**
4	**Antidepressants**	**1908(82.9%)**	**255(11.1%)**	**138(6%)**
5	**Hallucinogens**	**374(91%)**	**26(6.5%)**	**10(2.5%)**
6	**Cardiovascular drugs**	**804(89.5%)**	**85(9.5%)**	**9(1%)**
7	**Antipsychotics**	**366(45.7%)**	**256(32%)**	**178 (22.3%)**
8	**Alcohols**	**635(67.8%)**	**169(18%)**	**133(14.2%)**
9	**Petroleum distillates & turpentine**	**335(90.5%)**	**18(5%)**	**2(0.5%)**
10	**Pesticides**	**594(90.6%)**	**52(0.8%)**	**10(1.4%)**
11	**Anticonvulsants**	**462(64%)**	**166(23%)**	**94(24%)**
12	**Gases**	**156(64%)**	**29(12%)**	**58(24%)**
13	**Detergents**	**268(98%)**	**5(2%)**	**-**
14	**Corrosives**	**120(88%)**	**16(12%)**	**-**
15	**Poisonous plants**	**114(84%)**	**22(16%)**	**-**
16	**Iron**	**77(98.7%)**	**1(1.3%)**	**-**
17	**Rodenticides**	**477(94%)**	**30(6%)**	**-**
18	**Arsenic**	**520(95.2%)**	**26(4.8%)**	**-**
19	**Bites**	**164(93.5%)**	**11(6.5%)**	**-**
20	**Poisoning of unknown origin**	**1663(81.5%)**	**364(18.5%)**	**-**

*Stages of coma as shown in ref.1 p. 525

Discussion

There is a significant increase in the number of self-poisonings referred to this poison control center, as compared with the year 1991, by over 1.5 times.

The number of cases admitted in the ward (425 of 1000 cases) indicate more increase than a similar study in year 1991 in this center.

Most of the cases are in the range of 13 to 40 years with 15628 cases (80.1%) and in this range, group of 20 to 30 year constitute most of the cases with 6770 cases (34.7%).

In general, problems associated with marriage and living costs, activities of group in social and industrial occupations, crowded population in this range in our community are the causes of the high rate of cases in this group.

Decrease of cases after age 40 years is probably due to the lesser numbers of individuals in this range, logical decision about living difficulties and lower incidence of suicide attempts. Benzodiazepine with 16.4%, Analgesic with 12.65% and Antidepressants with 11.8% of total cases, constitute the most common drug-induced poisonings.

In Non-pharmaceutical poisonings, opiates with 2165 cases (11.2% of total), have been increased as compared with the study of year 1991 in this center. The most common cause of poisoning is voluntary in nature 18282 cases (93.7%), overall, suicide attempts accounted for the most frequent type of acute poisoning 12762(65.41%).

Herbicide poisoning is less than similar studies that is due to availability of drugs and other poisons.

The low incidence of carbon monoxide poisoning in comparison with other studies, is due to both preventive facilities, and the referral of carbon monoxide-induced deaths to the legal medicine organization of IRAN.

Deterioration in consciousness level is mostly seen in antipsychotics (52.3%) because of probable co-ingestion of other drugs. Because we don't have statistics of death due to poisoning before hospitalization, the mortality rate of 0.96% has been only considered at this center.

At last, to reduce the number of poisonings in adults and subsequent mortality and morbidity, it is suggested to emphasize the importance of primary health care, especially making focus on psychology health care in Adolescence.

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